

Linoleic acid

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Linoleic acid (LA) is an unsaturated omega-6 fatty acid. It is a colorless liquid. In physiological literature, it is called 18:2(n-6). Chemically, linoleic acid is a carboxylic acid with an 18-carbon chain and two *cis* double bonds; the first double bond is located at the sixth carbon from the omega end.

The word *linoleic* comes from the Greek word *linon* (flax). *Oleic* means *of, relating to, or derived from oil or of or relating to oleic acid* since removing the omega-6 double bond produces oleic acid.

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In Physiology

Linoleic acid is a polyunsaturated fatty acid used in the biosynthesis of prostaglandins. It is found in the lipids of cell membranes. It is abundant in many vegetable oils, especially safflower and sunflower oils.

To be fully utilised by the body, LA must be converted into gamma-linolenic acid, a reaction catalysed by the enzyme delta-6-desaturase (D6D).

Linoleic acid is a member of the group of essential fatty acids called omega-6 fatty acids, so called because they are an essential dietary requirement for all mammals. The other group of essential fatty acids is the omega-3 fatty acids, for example Alpha-linolenic acid. Omega-6 deficiency symptoms include dry hair, hair loss,^[2] and poor wound healing.^[3] It is easy to meet the daily requirement for these fatty acids (even for people consuming low fat diets) and most people get plenty of omega-6 fatty acids in their diet by consuming approximately a tablespoon of polyunsaturated plant oils per day.

Industrial uses

Linoleic acid is used in making soaps, emulsifiers, and quick-drying oils. Reduction of linoleic acid yields linoleyl alcohol. Linoleic acid has become increasingly popular in the beauty products industry because of its beneficial properties on the skin. Research points to linoleic acid's affective properties when applied topically on

Linoleic acid	
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IUPAC name	<i>cis, cis</i> -9,12-octadecadienoic acid. ^[1]
Identifiers	
CAS number	60-33-3
SMILES	<div>CCCCC=CCC=CCCCCCCC(=O)O</div>
Properties	
Molecular formula	C ₁₈ H ₃₂ O ₂
Molar mass	280.44548(1724) g/mol
Density	0.9 g/cm ³
Melting point	-5 °C
Boiling point	°C
Except where noted otherwise, data are given for materials in their standard state (at 25 °C, 100 kPa) <div>Infobox disclaimer and references</div>	

the skin, ie. anti-inflammatory, acne reduction, moisture retention properties.^{[4][5][6]} Noni seed oil is abundant in linoleic acid, and a number of beauty products contain noni seed oil.

Foods

Oils and foods that contain linoleic acid include safflower oil (78%), poppy seed oil (70%), walnut oil, grass fed cow milk, olive oil, palm oil, sunflower oil, soybean, lard, coconut oil, egg yolks (16%), spirulina, peanut oil, okra, rice bran oil, wheat germ oil, grape seed oil, macadamia oil, pistachio oil, sesame oil.

See also

- Alpha-linolenic acid
- Conjugated linoleic acid
- Essential fatty acids
- Essential fatty acid interactions
- Eicosanoids
- Essential nutrients
- Linolein

References

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